Title (en)

Elevated pressure air separation cycles with liquid production

Title (de)

Hochdruck-Lufttrennungsverfahren mit Gewinnung von Flüssigkeit

Title (fr)

Séparation d'air à pression élevée avec production de liquide

Publication

EP 0518491 B2 20000405 (EN)

Application

EP 92304337 A 19920514

Priority

US 70002191 A 19910514

Abstract (en)

[origin: EP0518491A1] The efficiency of producing liquid products from a cryogenic air separation process using a distillation column system having at least a high pressure distillation column (902) and a low pressure distillation column (904) in thermal communication with each other and in which system the low pressure column (904) operates at a pressure of 60 to 520 kPag (9 to 75 psig) and at least 50% of the feed air is removed as a nitrogen product (130) from the low pressure column (904), said product having a nitrogen concentration of at least 95% and is a pressure of at least 60 kPag (9 psig), is improved by partially warming the nitrogen product by heat exchange (918), isentropically expanding the warmed product (920,922) and use of the inherent refrigeration of the expanded nitrogen. The refrigeration can be recovered by heat exchange (916) against a liquid stream (5) from the high pressure column (902) and/or by heat exchange (900) against the feed air (101). <IMAGE>

IPC 1-7

F25J 3/04

IPC 8 full level

F25J 3/04 (2006.01)

CPC (source: EP US)

F25J 3/04181 (2013.01 - EP US); **F25J 3/04284** (2013.01 - EP US); **F25J 3/04296** (2013.01 - EP US); **F25J 3/04315** (2013.01 - EP US); **F25J 3/04393** (2013.01 - EP US); **F25J 3/04412** (2013.01 - EP US); **F25J 3/04672** (2013.01 - EP US); **F25J 3/04733** (2013.01 - EP US); F25J 2200/20 (2013.01 - EP US); F25J 2200/54 (2013.01 - EP US); F25J 2205/02 (2013.01 - EP US); F25J 2205/60 (2013.01 - EP US); F25J 2250/20 (2013.01 - EP US); Y10S 62/939 (2013.01 - EP US)

Cited by

EP1284403A1; CN112229142A; EP2741036A1; WO2017105188A1

Designated contracting state (EPC)

BE DE DK ES FR GB IT NL SE

DOCDB simple family (publication)

EP 0518491 A1 19921216; **EP 0518491 B1 19950301**; **EP 0518491 B2 20000405**; AU 630837 B1 19921105; CA 2068181 A1 19921115; CA 2068181 C 19971125; CS 145592 A3 19921118; DE 69201522 D1 19950406; DE 69201522 T2 19950713; DK 0518491 T3 19950612; ES 2076686 T3 19951101; JP 2735742 B2 19980402; JP H05157448 A 19930622; PL 168479 B1 19960229; PL 294545 A1 19921116; US 5165245 A 19921124

DOCDB simple family (application)

EP 92304337 A 19920514; AU 1618292 A 19920507; CA 2068181 A 19920507; CS 145592 A 19920514; DE 69201522 T 19920514; DK 92304337 T 19920514; ES 92304337 T 19920514; JP 14477792 A 19920511; PL 29454592 A 19920514; US 70002191 A 19910514